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EXAMINER

QIN, YIXING

ART UNIT PAPER NUMBER

2622

DATE MAILED: 01/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/876,080

Applicant(s)

WINSTON ET AL.

Examiner

Yixing Qin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 June 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Objections

Claim 19 is objected to because of the following informalities: The claim currently read "the method of claim 17..." but instead should say "the **computer** of claim 17..." since claim 17 states that a computer contains various components, not a method. Appropriate correction of claim 19 is required.

Drawings

The drawings are objected to because Fig. 1 contains numbers and lines pointing to various components seem to be "off," making the lines look like stray lines. For example, numbers 22, 30, 34 and 36 have lines that are off. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of

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any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

I. Claims 1-5, 10, 11, and 17-21 rejected under 35 U.S.C. 102(b) as being anticipated by Geelen (EPO Patent Application No. 0,729,090).

The Geelen reference discloses a print system with the capability to split jobs into sub-jobs and the printing of the sub-jobs in a plurality of printers.

I will address the first three independent claims 1, 17, and 21 first.

1. Claim 1

A computer based method for maximizing printing speed of a print job, comprising the steps of:

- **locating pages in the print job;**
- Geelen discloses in Fig. 4, column 5, lines 58-59 and column 6, line 1 that in Fig. 4 "...the data of the job 1 are represented by data blocks a-e. Each of these blocks may stand for a certain range of pages." Furthermore in Fig. 6 and column 6 lines 25-27, the contents of the job1 can be seen on a display (item 18).

- **creating an index of information relating to the locations of the pages in the print job;**
- Geelen discloses in column 5, lines 55-59 and column 6 lines 1-2 that "...a sequence of data which represent the jobs (job 1, job 2, etc.) which have been sequentially received from the host 12 and are stored in the memory 20. Each of these blocks may stand for a certain range of pages..."
- **determining if the pages in the print job meet a criteria based on the information in the index;**
- Geelen discloses in column 9, line 56 that "[i]n Fig. 12 the splitting criterium is the number of pages."
- **splitting the print job into a plurality of sets of pages if the pages in the print job meet the criteria;**
- Geelen discloses in column 9, lines 58-59, column 10, lines 1 that "[i]n field 61 the number of pages can be inputted on which the operator wants the incoming job to be splitted." Also, see column 10, lines 29-37.
- **and delivering said plurality of sets of pages to a plurality of printers, respectively, based on the information in the index.**
- Geelen discloses in column 10, lines 38-46 that "...the jobs inputted form a host in to the print server are splitted into sub-jobs and are not immediately distributed to the associated printers but for each printer stored in a queue...these queues are sent as blocks of data to the respective printers."

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17. Claim 17

The limitations above are the same as claim 1, with the exception that it is directed to an apparatus instead of a method

A computer used to improve printing speed of a print job in a computer system, comprising:

- **a first component for locating pages in the print job;**
- As disclosed above, the data blocks are stored in memory. Geelen also discloses in column 6, lines 31-35 that these blocked can be displayed (on the display (item 18 of Fig. 1). The data block must be located in order to be displayed.
- **a second component for creating an index with information relating to the locations of the pages in the print job;**
- Geelen discloses in column 3, lines 52-56 that "[t]he printer server 10 comprises a memory 20 for storing the job data received from the host 12..." (see Fig. 4) Also, in Fig. 9A, one can see that separators (such as 44, 46, 48, 50 and 52 of Fig. 9A) are created to separate various parts of job (each of which can be one or more pages). Geelen discloses in column 7, lines 35-38 that "...the job splitting unit 22 has modified the original data sequence show in Fig. 4 by inserting additional sub-job separators 44-52."
- **a third component for determining if the pages in the print job meet a criteria based on the information in the index;**

- Fig. 12 discloses one of the windows that can be down on the display (item 18 of Fig. 1). In column 9, lines 56-59, Geelen discloses that the incoming pages can be counted and that “[i]n field 61 the number of pages can be inputted on which the operator wants the incoming job to be splitted.
- **a fourth component for splitting the print job into a plurality of sets of pages if the pages in the print job meet the criteria;**
- Geelen disclose in Fig. 1 (item 22) a job splitter
- **and a fifth component for delivering said plurality of sets of pages to a plurality of printers, respectively, based on the information in the index.**
- Fig. 1 of Geelen shows different sub-jobs going to different printers. The information that separates these jobs from one another is stored in the memory as well (see Fig. 9A)

21. Claim 21

A system coupled to a computer network for printing a print job sent by a user connected to the network, the system comprising:

- **a. a plurality of printers;**
- **and b. computer coupled to the printers for improving printing speed of the print job;**
 - **the computer comprising:**
 - **i. a first component for locating pages in the print job;**

- **ii. a second component for creating an index with the locations of the pages in the print job;**
 - **iii. a third component for determining if the pages in the print job meet a criteria based on the information in the index;**
 - **iv. a fourth component for splitting the print job into a plurality of sets of pages if the pages in the print job meet the criteria; and**
 - **v. a fifth component for delivering said plurality of sets of pages to the plurality of printers, respectively, based on the information in the index.**
- Geelen shows in Fig. 3 that a plurality of hosts are connected to a server, which is connected to a plurality of printers and a TN (telecommunications network). The hosts send jobs to be printed. All other limitations regarding the computer has been address in the rejection to claim 17 above.

2. Claims 2 and 18

The method (computer) of claim 1 (17), wherein

- **the criteria in the determining step is quantity of pages;**
- Geelen discloses in column 9, line 56 that “[i]n Fig. 12 the splitting criterium is the number of pages.”
- **and wherein the splitting step comprises splitting the print job based on the quantity of pages and a number of printers.**

- Geelen discloses the criterium for splitting as the number of pages in the above limitation. Also in column 10, lines 29-32, Geelen discloses that “[t]he splitting unit 22 comprises in a memory a table wherein the splitting criteria can be stored. This table further comprises identifiers which define the specific printers on which a sub-job has to be printed.” Jobs can be split according to examples in Fig. 4 and also in Figs. 9A-11B.

3. Claims 3 and 19

The method (computer) of claim 1 (17), wherein

- **the print job is split into a plurality of substantially equal sets of pages.**
- Geelen discloses in column 5 line 59 and column 6 lines 1-2 that “[e]ach of these blocks [of data] may stand for a certain range of pages, an individual page or even part of a page.” and Fig. 4. In particular, “an individual page” indicates that each of the blocks is a single page, which is the same as equal sets of one page.

4. Claims 4 and 20

The method (computer) of claim 1 (17), wherein

- **the step of locating the pages in the print job includes the step of scanning the print job for page markers**
- From the above rejection to claims 3 and 15, Geelen discloses that the individual blocks (i.e. a-e of Fig. 4) can be individual pages. Furthermore, Geelen discloses in column 7, lines 38-48 that various separators separate the difference sub-jobs

of a job. If each sub-job only had 1 page, the sub-job separators effectively become page separators (or markers).

- Furthermore, Geelen discloses in column 6, lines 25-27 that “[w]hen the user then presses the button 36 with the function 'view', the display 18 changes to the status shown in Fig. 6.” Geelen discloses in column 6, lines 31-35 that the example in Fig. 6 shows “...data blocks a-e are individual pages...and are displayed at a reduced scale.” One can see that in Fig. 6, the block (individual pages) are separated from one another, indicating that the separators (markers) are what determines the separation.

5. Claim 5

The method of claim 4, wherein

- **the step of creating an index of information includes the step of saving the location of the page markers identified during the scanning step.**
- Geelen discloses in Fig. 9A-C various data sequences saved in memory. One can see that the separators (items 44, 46, 48, 50 and 52 of Fig. 9A) are part of the data sequence.

10. Claim 10

The method of claim 1, wherein

- **the print job includes a document with a plurality of pages**

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- Geelen discloses in column 3, lines 57-59 and column 4, line 1 that “[t]he memory 20 [can store] a plurality of jobs, each job consisting of the data of a document which may have a large number of pages.”

11. Claim 11

The method of claim 1, wherein

- the print job includes a plurality of copies of a document.
- Geelen discloses in column 6, lines 4-11 information that could be part of the data sequence. In particular, line 9 discloses that “...the number of copies to be printed...” could be a piece of information that is sent to the print server.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

II. Claims 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Geelen (EPO Patent Application No. 0,729,090) in view of Zingher (U.S. Patent No. 5,897,260).

The Zingher reference discloses a job allocation system where customers can print to a variety of printing plants (each of which include multiple printers).

6. Claim 6

The method of claim 1, further comprising the step of

- **scanning the print job prior to locating pages to determine whether the print job is of the type that is capable of being split.**
- Geelen only discloses the ability and method for splitting pages, but never explicitly addresses situations where a document is unable to be split to various printers due to some constraint. However, the secondary reference, Zingher, discloses in column 6, lines 8-18 the processing of a requested job. In particular, lines 12-15 discloses that “[a] particular print job is allocated and distributed to one or more printing plants 20 in accordance with the requirements profile generated from the data input by the customers 30 via the data input devices 32.” Zingher discloses in column 4, lines 7-22 various information that could be included as part of the printing requirements. If indeed only one printer is able to meet the requirements, then the job would be seen as not being split to different printers.
- Since both references are in the art of distributed printing for increase efficiency of print jobs, it would have been obvious to one of ordinary skill in the art to scan criteria or information about the print job to determine if it is capable of being split. The motivation would be to avoid splitting a job to various printers where

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only one of the printers is capable of meeting the criteria of the job (i.e. printing size, material, etc.)

7. Claim 7

The method of claim 6, further comprising the step of

- **delivering the print job to a printer without proceeding to the locating step, if the print job is not capable of being split.**
- Again, the Geelen reference does not explicitly disclose information regarding the inability to split a print job. However, the secondary reference, Zingher, discloses in column 7, lines 14-18 that “[t]he print job processor 14 can be programmed to directly dispatch the print job data and print job request to the printing control device 24 controlling the selected printing machine 22 to have the printing machine 22 process the print job.”
- Again, since both references are in the art of distributed printing for increase efficiency of print jobs, it would have been obvious to one of ordinary skill in the art to scan criteria and proceed to printing without locating the pages to be split. The motivation would be to save time and increase efficiency because locating pages to be split in a job where pages are not intended to be split is unnecessary work.

8. Claim 8

The method of claim 7, further including the step of

- **determining the format of the print job.**
- The Geelen reference discloses in column 3, lines 26-28 that "[t] host 12 may be any suitable data source capable of providing data such as text data or graphic data which are to be printed."

9. Claim 9

The method of claim 8, wherein

- **the format is postscript.**
- Although the Geelen reference does disclose that data could be text or graphical (see claim 7 above), it does not explicitly disclose that their format is postscript. However, the examiner takes official notice because postscript is a well-known language for telling printers how to print text and graphics. It would be obvious to one of ordinary skill in the art to use this format since it is a commonly accepted language for relaying text and graphics information to a printer.

III. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Geelen (EPO Patent Application No. 0,729,090) in view of Lobiondo (U.S. Patent No. 5,287,194)

The Lobiondo reference discloses a printing management system that provides optimal scheduling of print jobs on a network.

12. Claim 12

The method of claim 1, wherein

- **the plurality of sets of pages is printed in duplex on a plurality of sheets.**
- The Geelen reference discloses that print data includes various information, neither explicitly discloses the ability to perform duplex printing or duplex printers in their system. However, the secondary reference, Lobiondo, discloses in column 6, lines 50-58 that on "...printing parameter [is] simplex or duplex [and if]... the job can be completed on time the job is allocated to the printer..."
- Both references are in the art of distributed printing for increase efficiency. Thus, it would have been obvious to one of ordinary skill in the art to improve Geelen's invention with Lobiondo's duplex printing. The motivation would be to expand the capabilities of Geelen's invention because duplex printing is a common paper-saving method of printing used by many people.

III. Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Geelen (EPO Patent Application No. 0,729,090).

1. Claim 13

A computer program that causes a computer to perform a method for maximizing printing speed of a print job, the method comprising the steps of:

- **locating pages in the print job;**
- **creating an index of information relating to the locations of the pages in the print job;**
- **determining if the pages in the print job meet a criteria based on the information in the index;**
- **splitting the print job into a plurality of sets of pages if the pages in the print job meet the criteria;**
- **and delivering said plurality of sets of pages to a plurality of printers, respectively, based on the information in the index.**
- The limitations of claim 13 are essentially the same as claim 1 above (please see rejection to claim 1 above), except that it is a program that performs all the steps.
- Regarding claim 13, Geelen discloses in column 5, lines 5-7 that “[t]he format in which the splitting unit 22 sends print requests and/or data for the sub-jobs to the scheduler is identical to the format for complete jobs...[and] the operation of the scheduler 26 is the same as that of conventional schedulers were are known in the are for processing entire jobs.” Also, in Fig. 2 of Geelen, the print scheduler (item 26) is disclosed be part of the print server (item 10).
- The job process is disclosed in column 3, lines 37 to column 4, line 18. This is an indication that the scheduler 26 can perform the all functions as described in the Geelen reference in terms of processing data to be printed. Although it is not explicitly stated in the Geelen reference that there is a program, the print scheduler must be controlled by some software or hardware in order to process

print jobs. It would have been obvious to one of ordinary skill in the art to implement the system of Geelen in either hardware or software. Both hardware and software have its advantages and uses and the conversion from one to the other is something one of ordinary skill in the art would know how to do.

2. Claim 14

The computer program of claim 13, wherein

- **the criteria in the determining step is quantity of pages;**
- Geelen discloses in column 9, line 56 that “[i]n Fig. 12 the splitting criterium is the number of pages.”
- **and wherein the splitting step comprises splitting the print job based on the quantity of pages and a number of printers.**
- Geelen discloses the criterium for splitting as the number of pages in the above limitation. Also in column 10, lines 29-32, Geelen discloses that “[t]he splitting unit 22 comprises in a memory a table wherein the splitting criteria can be stored. This table further comprises identifiers which define the specific printers on which a sub-job has to be printed.” Jobs can be split according to examples in Fig. 4 and also in Figs. 9A-11B.

3. Claim 15

The computer program of claim 13, wherein

- **the print job is split into a plurality of substantially equal sets of pages.**

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- Geelen discloses in column 5 line 59 and column 6 lines 1-2 that “[e]ach of these blocks [of data] may stand for a certain range of pages, an individual page or even part of a page.” and Fig. 4. In particular, “an individual page” indicates that each of the blocks is a single page, which is the same as equal sets of one page.

4. Claims 16

The computer program of claim 13, wherein

- **the step of locating the pages in the print job includes the step of scanning the print job for page markers**
- From the above rejection to claims 3 and 15, Geelen discloses that the individual blocks (i.e. a-e of Fig. 4) can be individual pages. Furthermore, Geelen discloses in column 7, lines 38-48 that various separators separate the different sub-jobs of a job. If each sub-job only had 1 page, the sub-job separators effectively become page separators (or markers).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yixing Qin whose telephone number is 703-306-4142.


The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Coles can be reached on 703-305-4712. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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